

AMENDMENTS TO THE CLAIMS

Please CANCEL claims 20, 21, 25, and 30 without prejudice or disclaimer.

Please AMEND claims 17, 22 - 24, 26 - 29, and 31 - 33 as shown below.

The following is a complete list of all claims in this application.

1 - 16. (Previously cancelled)

17. (Currently amended) A liquid crystal display, comprising:

a top substrate common electrode;

a plurality of gate lines extending in a row direction;

a plurality of data lines extending in a column direction;

a plurality of switching elements connected to the gate lines and the data lines;~~and~~

a plurality of pixel electrodes facing the top substrate common electrode, arranged in a matrix, and connected to the switching elements;~~;~~ and

a plurality of common electrode lines extending in the row direction, each of the plurality of common electrode lines placed between the plurality of gate lines;

wherein, in a row of the plurality of pixel electrodes, the plurality of switching elements connected to the plurality of pixel electrodes are alternately connected to neighboring gate lines;
and

a common electrode voltage for storage applied to the plurality of common electrode lines is swung in a predetermined period.

18. (Previously presented) The liquid crystal display of claim 17, further

comprising a data driver for applying data voltages to the data lines in line inversion.

19. (Previously presented) The liquid crystal display of claim 17, wherein a polarity of each pixel electrode is inverted every frame.

20 - 21. (Currently canceled)

22. (Currently amended) The liquid crystal display of claim 17~~24~~, wherein the common electrode voltage has a square waveform having a period equal to a period of the data voltages.

23. (Currently amended) The liquid crystal display of claim 17~~24~~, wherein the common electrode voltage has a square waveform having a period three times longer than a period of the data voltages.

24. (Currently amended) A method for driving a liquid crystal display including a top substrate common electrode a plurality of gate lines, a plurality of data lines, a plurality of common electrode lines arranged alternately between the plurality of gate lines, a plurality of pixels connected to the plurality of gate lines and the plurality of data lines and arranged in a matrix, said method comprising:

applying a first data voltage of a first polarity to the plurality of data lines;

providing a first scanning signal for odd pixels in an odd row and even pixels in an even row;

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines; ~~and~~

providing a second scanning signal for odd pixels in an even row and even pixels in an odd row; ~~and~~

supplying the common electrode lines with a swinging common electrode voltage.

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25. (Currently Canceled)

26. (Currently amended) A method for driving a liquid crystal display including a plurality of gate lines, a plurality of data lines, a plurality of common electrode lines arranged alternately between the plurality of gate lines, a plurality of pixels connected to the plurality of gate lines and the plurality of data lines and arranged in a matrix, said method comprising:
applying a first data voltage of a first polarity to the plurality of data lines;
providing a first scanning signal for odd pixels in an odd row and even pixels in an even row;
applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines;
providing a second scanning signal for odd pixels in an even row and even pixels in an odd row;

supplying the common electrode lines with a swinging common electrode voltage;

~~The method of claim 25,~~ wherein a swing amplitude of the common electrode voltage is established as:

$$\Delta V_{com} = \frac{2(V_{max} + V_{th})(C_{st} + C_{lc-black})(C_{st} + C_{lc-white})}{C_{st}(2C_{st} + C_{lc-white} + C_{lc-black})}$$

where V_{max} represents the maximum value of the actual voltage sensed by a liquid crystal, V_{th} represents the minimum value of the actual voltage sensed by the liquid crystal, C_{lc} represents a liquid crystal capacitance, C_{st} represents a storage capacitance, $C_{lc-black}$ represents the liquid crystal capacitance in a black mode, and $C_{lc-white}$ represents the liquid crystal capacitance in

a white mode.

27. (Currently amended) The method of claim 2425, wherein the common electrode voltage has a square waveform having a same period as the first data voltage and the second data voltage.

28. (Currently amended) The method of claim 2425, wherein the common electrode voltage has a square waveform having a three times longer period than the first data voltage and the second data voltage.

29. (Currently amended) A method for driving a liquid crystal display including a top substrate common electrode, a plurality of gate lines, a plurality of data lines, a plurality of common electrode lines arranged alternately between the plurality of gate lines, a plurality of first pixels and a plurality of second pixels connected to the plurality of gate lines and the plurality data lines and arranged alternately in rows and columns, said method comprising:

applying a first data voltage of a first polarity to the plurality of data lines;

providing a first scanning signal to the plurality of first pixels in pairs of neighboring rows;

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines; ~~and~~

providing a second scanning signal to the plurality of second pixels in pairs of neighboring rows; and

supplying the plurality of common electrode lines with a swinging common electrode voltage.

30. (Currently cancelled)

31. (Currently amended) A method for driving a liquid crystal display including

a plurality of gate lines, a plurality of data lines, a plurality of common electrode lines arranged alternately between the plurality of gate lines, a plurality of first pixels and a plurality of second pixels connected to the plurality of gate lines and the plurality data lines and arranged alternately in rows and columns, said method comprising:

applying a first data voltage of a first polarity to the plurality of data lines;

providing a first scanning signal to the plurality of first pixels in pairs of neighboring rows;

applying a second data voltage of a second polarity opposite to the first polarity to the plurality of data lines;

providing a second scanning signal to the plurality of second pixels in pairs of neighboring rows;

supplying the plurality of common electrode lines with a swinging common electrode voltage; and

~~The method of claim 30, wherein~~ a swing amplitude of the common electrode voltage is established as:

$$\Delta V_{com} = \frac{2(V_{max} + V_{th})(C_{st} + C_{lc-black})(C_{st} + C_{lc-white})}{C_{st}(2C_{st} + C_{lc-white} + C_{lc-black})}$$

where V_{max} represents the maximum value of the actual voltage sensed by a liquid crystal, V_{th} represents the minimum value of the actual voltage sensed by the liquid crystal, C_{lc} represents a liquid crystal capacitance, C_{st} represents a storage capacitance, $C_{lc-black}$ represents the liquid crystal capacitance in a black mode, and $C_{lc-white}$ represents the liquid crystal capacitance in a white mode.

32. (Currently amended) The method of claim 2930, wherein the common electrode voltage has a square waveform having a same period as the first data voltage and the second data voltage.

33. (Currently amended) The method of claim 2930, wherein the common electrode voltage has a square waveform having a period three times longer than the first data voltage and second data voltage.